



DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
Permit Application Analysis
A0001330

August 14, 2015

NAME OF FIRM: ONEOK Bakken Pipeline, LLC

NAME OF FACILITY: Aladdin Booster Station

FACILITY LOCATION: Section 5, T54N, R61W
Lat: 44.7015° Long: -104.20328°
Crook County, Wyoming

TYPE OF OPERATION: Natural gas liquids (NGL) booster station

RESPONSIBLE OFFICIAL: Patrick Allison
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REVIEWING ENGINEER: Alicia Boltz, Air Quality Engineer

1. PURPOSE OF APPLICATION

On July 20, 2015, the Division of Air Quality received an application from ONEOK Bakken Pipeline, LLC to modify the Aladdin Booster Station with the operation of one (1) 173 hp Cummins QSB5G9 temporary diesel fired generator engine, seven (7) 314 hp Cummins QSB7G6 temporary diesel fired generator engines, three (3) 433 hp Cummins QSL9G8 temporary diesel fired generator engines and four (4) 2,500 gallon temporary diesel storage tanks. The Aladdin Booster Station is located in Section 5, T54N, R61W, twenty (20) miles east of Hulett, in Crook County, Wyoming.

2. PROCESS DESCRIPTION

The eleven (11) EPA Tier 4i certified, temporary diesel generator engines as well as four (4) 2,500 gallon diesel storage tanks are already in temporary operation at the booster station, permitted under Air Quality Waiver P0017278, which expires on August 27, 2015. The Division issued Air Quality Waiver wv-17073 on August 14, 2015, to extend the operation of the eleven (11) EPA Tier 4i certified, temporary diesel generator engines and four (4) 2,500 gallon diesel storage tanks until November 25, 2015, or when the Air Quality Permit is issued for permit application A0001330, whichever comes first. The temporary generator engines are used to supply power to the buildings and other areas of the booster station, until permanent line power can be installed. ONEOK Bakken Pipeline, LLC is requesting authorization to extend the operation of these engines and tanks for a period of 180 days.

3. PERMIT HISTORY

On April 12, 2013, Air Quality Waiver wv-14479 was issued to construct the Aladdin Booster Station consisting of three (3) electric pumps and one (1) flare.

On September 16, 2013, Air Quality Waiver wv-14981-6 was issued to supersede Air Quality Waiver wv-14479 and account for emissions associated with predicted maintenance activities and emissions associated with component fugitives.

On May 22, 2015, Air Quality Waiver P0017278 was issued for the operation of one (1) 173 hp Cummins QSB5G9 temporary diesel fired generator engine, seven (7) 314 hp Cummins QSB7G6 temporary diesel fired generator engines, three (3) 433 hp Cummins QSL9G8 temporary diesel fired generator engines and four (4) 2,500 gallon temporary diesel storage tanks. Air Quality Waiver P0017278 expires on August 27, 2015.

On August 14, 2015, Air Quality Waiver wv-17023 was issued to extend the operation of the one (1) 173 hp Cummins QSB5G9 temporary diesel fired generator engine, seven (7) 314 hp Cummins QSB7G6 temporary diesel fired generator engines, three (3) 433 hp Cummins QSL9G8 temporary diesel fired generator engines and four (4) 2,500 gallon temporary diesel storage tanks. This waiver expires on November 25, 2015, or when the Air Quality Permit is issued for permit application A0001330, whichever comes first.

4. ESTIMATED EMISSIONS

The temporary generator engines will be diesel fired. The major pollutants emitted from diesel combustion include nitrogen oxides (NO_x) with some carbon monoxide (CO) from incomplete combustion. Volatile organic compounds (VOCs) including some hazardous air pollutants (HAPs) will also be emitted from the engines. Emission factors for the engine types and the estimated emissions are shown in the following tables:

Table 1: Engine Emission Factors (g/hp-hr)								
Engine	IMPACT ID	hp	Controls	NO _x	CO	VOC	Formaldehyde	SO ₂
Cummins QSB5G9	ENG002	173	Tier 4i	1.5	2.6	0.1	0.01	0.93
Cummins QSB7G6	ENG003-ENG009	314	Tier 4i	1.5	2.6	0.1	0.01	0.93
Cummins QSL9G8	ENG010-ENG012	433	Tier 4i	1.5	2.6	0.1	0.01	0.93

Table 2: Engine Emissions¹

Engine	IMPACT ID	NO _x		CO		VOC		Formaldehyde		SO ₂	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Cummins QSB5G9	ENG002	0.6	1.2	1.0	2.1	<0.1	0.1	<0.01	0.01	0.35	0.77
Cummins QSB7G6	ENG003-ENG009	1.0	2.2	1.8	3.9	0.1	0.2	0.01	0.01	0.64	1.39
Cummins QSL9G8	ENG010-ENG012	1.4	3.1	2.5	5.4	0.1	0.2	0.01	0.02	0.89	1.92

¹ Emissions in tpy based on 4,320 hours of operation.

Estimated emissions from each source at the facility are shown in the following table:

Table 3: Aladdin Booster Station Emissions (tpy)¹

Source	IMPACT ID	NO _x		CO		VOC		Formaldehyde		SO ₂	
		lb/hr	tpy	lb/hr	tpy	lb/hr	lb/hr	lb/hr	tpy	lb/hr	tpy
Permitted Emissions (wv-14981-6)											
Component Fugitives	--	--	--	--	--	1.1	4.6	0.01	0.04	--	--
Maintenance	--	--	--	--	--	Controlled by Flare				--	--
Flare	--	2.1	0.1	11.8	0.3	21.4	0.6	--	--	--	--
Total Permitted Emissions		2.1	0.1	11.8	0.3	22.5	5.2	0.01	0.04	--	--
Proposed Temporary Emissions											
Cummins QSB5G9 ¹	ENG002	0.6	1.2	1.0	2.1	<0.1	0.1	<0.01	0.01	0.35	0.77
Cummins QSB7G6 ¹	ENG003	1.0	2.2	1.8	3.9	0.1	0.2	0.01	0.01	0.64	1.39
Cummins QSB7G6 ¹	ENG004	1.0	2.2	1.8	3.9	0.1	0.2	0.01	0.01	0.64	1.39
Cummins QSB7G6 ¹	ENG005	1.0	2.2	1.8	3.9	0.1	0.2	0.01	0.01	0.64	1.39
Cummins QSB7G6 ¹	ENG006	1.0	2.2	1.8	3.9	0.1	0.2	0.01	0.01	0.64	1.39
Cummins QSB7G6 ¹	ENG007	1.0	2.2	1.8	3.9	0.1	0.2	0.01	0.01	0.64	1.39
Cummins QSB7G6 ¹	ENG008	1.0	2.2	1.8	3.9	0.1	0.2	0.01	0.01	0.64	1.39
Cummins QSB7G6 ¹	ENG009	1.0	2.2	1.8	3.9	0.1	0.2	0.01	0.01	0.64	1.39
Cummins QSL9G8 ¹	ENG010	1.4	3.1	2.5	5.4	0.1	0.2	0.01	0.02	0.89	1.92
Cummins QSL9G8 ¹	ENG011	1.4	3.1	2.5	5.4	0.1	0.2	0.01	0.02	0.89	1.92
Cummins QSL9G8 ¹	ENG012	1.4	3.1	2.5	5.4	0.1	0.2	0.01	0.02	0.89	1.92
Diesel Storage Tank ¹	TNK001	--	--	--	--	insig	insig	insig	insig	--	--
Diesel Storage Tank ¹	TNK002	--	--	--	--	insig	insig	insig	insig	--	--
Diesel Storage Tank ¹	TNK003	--	--	--	--	insig	insig	insig	insig	--	--
Diesel Storage Tank ¹	TNK004	--	--	--	--	insig	insig	insig	insig	--	--
Change in Emissions		11.8	25.9	21.1	45.6	1.0	2.1	0.10	0.14	7.50	16.26
Total Facility Emissions		13.9	26.0	32.9	45.9	23.5	7.3	0.11	0.18	7.50	16.26

¹ Emissions in tpy based on 4,320 hours of operation.

5. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

Per the requirements of Chapter 6 Section 2 of the Wyoming Air Quality Standards and Regulations (WAQSR), all facilities must demonstrate the use of BACT.

The operation of the temporary diesel fired generator engines rated at EPA Tier 4i emission levels will be controlled to the levels listed in Table 1. The Division considers Tier 3 emission levels or better for diesel engines as representing BACT.

6. CHAPTER 6, SECTION 3 APPLICABILITY

The Aladdin Booster Station is not a “major source” as defined by Chapter 6, Section 3 of the Wyoming Air Quality Standards and Regulations (WAQSR). Therefore, ONEOK Bakken Pipeline, LLC shall obtain an operating permit in accordance with Chapter 6, Section 2 of the WAQSR.

7. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (MACT)

EPA’s current promulgated NESHAP rules under 40 CFR part 63, subpart ZZZZ apply to major sources of HAP emissions, as well as area sources of HAP emissions. Since the Aladdin Booster Station has the potential to emit less than 10 tpy of any individual HAP, or 25 tpy of any combination of HAPs, the facility is considered an area source of HAPs, and engines at this facility will be subject to all applicable requirements of 40 CFR part 63, subpart ZZZZ - *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*.

8. PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The Aladdin Booster Station is not a “major stationary source” as defined by Chapter 6, Section 4 of the WAQSR. Therefore, the Aladdin Booster Station is not subject to PSD review under Chapter 6, Section 4.

9. NEW SOURCE PERFORMANCE STANDARDS (NSPS)

Subpart IIII applies to stationary diesel engines. The temporary generator engines are subject to all applicable requirements of 40 CFR part 60, subpart IIII based on the manufacture date and time/period of operation at the facility. If the diesel fired generators are only used for up to 180 days, Subpart IIII does not apply.

40 CFR part 60, subpart Kb - *Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984* - does not apply to the various storage tanks at the Aladdin Booster Station due to them having capacities less than seventy-five cubic meters (75 m³ or 471 bbl).

10. PROJECTED IMPACT ON EXISTING AMBIENT AIR QUALITY

It is the Division’s experience that ambient air quality standards will be maintained with the utilization of control measures recognized as BACT for diesel fired engine operations.

11. PROPOSED PERMIT CONDITIONS

The Division proposes to issue an Air Quality Permit to ONEOK Bakken Pipeline, LLC to modify the Aladdin Booster Station with the following conditions:

1. That authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or is being constructed or installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rules, standards, permits or orders.

2. That all substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as conditions of this permit.
3. That a permit to operate, in accordance with Chapter 6, Section 2(a)(iii) of the WAQSR, is required after a 120 day start-up period in order to operate this facility.
4. That all notifications, reports and correspondences associated with this permit shall be submitted to the Stationary Source Compliance Program Manager, Air Quality Division, 122 West 25th Street, Cheyenne, WY 82002 and a copy shall be submitted to the District Engineer, Air Quality Division, 2100 West 5th Street, Sheridan, WY 82801. Submissions may also be done electronically through <https://airimpact.wyo.gov> to satisfy requirements of this permit.
5. Engine shut-down notifications shall be submitted to the Division, within fifteen (15) days of shut-down of each of the temporary generator engines. Such notification shall be submitted on a complete Engine Installation/Removal form. The form can be downloaded from the Air Quality website <http://deq.wyoming.gov/aqd/> or obtained from the Air Quality Division.
6. The diesel generator engines shall be U.S. EPA Tier 4i certified. Records of the certifications shall be maintained for a period of at least five (5) years and shall be made available to the Division upon request.
7. That for the temporary generator engines, ONEOK Bakken Pipeline, LLC shall operate and maintain the engine, air pollution control equipment and monitoring equipment according to good air pollution control practices at all times, including startup, shutdown and malfunction. Records of any maintenance or corrective actions shall be kept and maintained for a period of five (5) years and shall be made available to the Division upon request.
8. This permit shall expire 180 days from permit issuance.